IN THE CLAIMS

Page 7, line 1, change "Patent Claims" to --What is claimed is:--.

Claims 1-17 (cancelled).

18. (New) A method of controlling an excimer laser unit to perform cornea ablation to reduce presbyopia, the comprising the step of:

a) controlling said excimer laser unit to produce on the cornea a photoablative pattern inducing a fourth-order ocular aberration.

19. (New) The control method as claimed in Claim 18, wherein said induced fourth-order aberration is a spherical aberration.

20. (New) The control method as claimed in Claim 19, wherein said induced spherical aberration is a positive spherical aberration.

21. (New) The control method as claimed in Claim 18, wherein said step a) further comprises the steps of:

a1) acquiring an aberrometric map of the eye indicating the visual defects of the eye, said visual defects comprising second-order visual defects including hypermetropia, astigmatism and myopia, and higher-order visual defects including spherical aberration;

a2) if the detected spherical aberration is negative, increasing it numerically in absolute value to obtain an overcorrect photoablative pattern inducing positive spherical aberration;

a3) if the detected spherical aberration is positive, changing its sign and increasing it numerically in absolute value to obtain an overcorrect photoablative pattern inducing positive spherical aberration; and

a4) supplying the photoablative pattern so generated to said excimer laser unit for implementation on said cornea.

22. (New) The control method as claimed in Claim 18, wherein said step a) also comprises the step of:

b) controlling said excimer laser unit to perform specific photoablative treatment related to the visual defect of the eye associated with the presbyopia.

23. (New) The control method as claimed in Claim 22, wherein said step b) comprises the steps of:

c) if the visual defect of the eye is hypermetropia, controlling said excimer laser unit to perform the following operations:

c1) ablation of a circular corona of maximum 6 mm inside diameter, maximum 9 mm outside diameter, and of such a depth as to compensate the spherical defect;

c2) ablation with a customized ablative pattern to eliminate higher than second-order defects, with reference to aberrometric data acquired prior to the operation in the preceding point; and

c3) if the above operations fail to achieve a coefficient of Zernike's polynomial Z_4^0 ranging between 0.1 and 1.0, ablation with a customized ablative pattern to obtain even greater spherical aberration;

d) if the visual defect of the eye is hypermetropia and positive astigmatism or hypermetropia and negative astigmatism, controlling said excimer laser unit to perform the following operations:

d1) cylindrical ablation, with the excimer laser unit set solely to the cylindrical defect, to bring the cylindrical defect close to zero;

d2) ablation of a circular corona of maximum 6 mm inside diameter, maximum 9 mm outside diameter, and of such a depth as to compensate the spherical defect;

d3) ablation with a customized ablative pattern to eliminate higher than second-order defects, with reference to aberrometric data acquired prior to the operation in the preceding point; and

d4) if the above operations fail to achieve a coefficient of Zernike's polynomial Z_4^0 ranging between 0.1 and 1.0, ablation with a customized ablative pattern to obtain even greater spherical aberration;

e) if the visual defect of the eye is myopia, controlling said excimer laser unit to perform the following operations:

e1) ablation to such a depth as to compensate the spherical defect; and

e2) ablation with a customized ablative pattern to induce positive spherical aberration

with a coefficient of Zernike's polynomial Z_4^0 ranging between 0.1 and 1.0;

f) if the visual defect of the eye is myopia and positive astigmatism or myopia and negative astigmatism, controlling said excimer laser unit to perform the following operations:

f1) cylindrical ablation, with the excimer laser unit set solely to the cylindrical defect, to bring the cylindrical defect close to zero;

f2) ablation to such a depth as to compensate the spherical defect; and

f3) ablation with a customized ablative pattern to induce positive spherical aberration with a coefficient of Zernike's polynomial Z_4^0 ranging between 0.1 and 1.0;

g) if the visual defect of the eye is emmetropia, controlling said excimer laser unit to perform:

g1) operations d2), d3) and d4), if the visual defect improves using a positive lens; and

g2) operations e1) and e2), if the visual defect improves using a negative lens;

h) if the visual defect of the eye is positive astigmatism or negative astigmatism, controlling said excimer laser unit to perform:

h1) operation d1) to achieve emmetropia;

h2) operations d2), d3) and d4), if the visual defect improves using a positive lens; and

h3) operations e1) and e2), if the visual defect improves using a negative lens.

24. (New) The control method as claimed in Claim 18, also comprising the step of:

i) controlling said excimer laser unit to form on the cornea a photoablative pattern which also corrects higher-order aberrations.

25. (New) An excimer laser unit for performing cornea ablation to reduce presbyopia, comprising:

a) first control means for controlling said excimer laser unit to form on the cornea a photoablative pattern inducing a fourth-order ocular aberration.

26. (New) The excimer laser unit as claimed in Claim 25, wherein said induced fourth-order aberration is a spherical aberration.

27. (New) The excimer laser unit as claimed in Claim 26, wherein said induced spherical aberration is a positive spherical aberration.

28. (New) An excimer laser unit as claimed in Claim 25, wherein said first control means comprise:

a1) aberrometric measuring means for acquiring an aberrometric map of the eye indicating the visual defects of the eye, said visual defects comprising second-order visual defects including hypermetropia, astigmatism and myopia, and higher-order visual defects including spherical aberration;

a2) first photoablative pattern generating means which are activated, if the detected spherical aberration is negative, to numerically increase in absolute value the spherical aberration detected by said aberrometric measuring means, and so generate a photoablative pattern inducing positive spherical aberration;

a3) second photoablative pattern generating means which are activated, if the detected spherical aberration is positive, to change the sign of and numerically increase in absolute value the spherical aberration detected by said aberrometric measuring means, and so generate a photoablative pattern inducing positive spherical aberration;

a4) supply means for supplying the photoablative pattern so generated to said excimer laser unit for implementation on said cornea.

29. (New) The excimer laser unit as claimed in Claim 25, wherein said first control means control said excimer laser unit to perform a specific photoablative treatment related to the visual defect of the eye associated with the presbyopia.

30. (New) The excimer laser unit as claimed in Claim 29, wherein said first control means:

c) if the visual defect of the eye is hypermetropia, control said excimer laser unit to perform the following operations:

c1) ablation of a circular corona of maximum 6 mm inside diameter, maximum 9 mm outside diameter, and of such a depth as to compensate the spherical defect;

c2) ablation with a customized ablative pattern to eliminate higher than second-order defects, with reference to aberrometric data acquired prior to the operation in the preceding point; and

c3) if the above operations fail to achieve a coefficient of Zernike's polynomial Z_4^0 ranging between 0.1 and 1.0, ablation with a customized ablative pattern to obtain even greater spherical aberration;

d) if the visual defect of the eye is hypermetropia and positive astigmatism or hypermetropia and negative astigmatism, control said excimer laser unit to perform the following operations:

d1) cylindrical ablation, with the excimer laser unit set solely to the cylindrical defect, to bring the cylindrical defect close to zero;

d2) ablation of a circular corona of maximum 6 mm inside diameter, maximum 9 mm outside diameter, and of such a depth as to compensate the spherical defect;

d3) ablation with a customized ablative pattern to eliminate higher than second-order defects, with reference to aberrometric data acquired prior to the operation in the preceding point; and

d4) if the above operations fail to achieve a coefficient of Zernike's polynomial Z_4^0 ranging between 0.1 and 1.0, ablation with a customized ablative pattern to obtain even greater spherical aberration;

e) if the visual defect of the eye is myopia, control said excimer laser unit to perform the following operations:

e1) ablation to such a depth as to compensate the spherical defect; and

e2) ablation with a customized ablative pattern to induce positive spherical aberration with a coefficient of Zernike's polynomial Z_4^0 ranging between 0.1 and 1.0;

f) if the visual defect of the eye is myopia and positive astigmatism or myopia and negative astigmatism, control said excimer laser unit to perform the following operations:

f1) cylindrical ablation, with the excimer laser unit set solely to the cylindrical defect, to bring the cylindrical defect close to zero;

f2) ablation to such a depth as to compensate the spherical defect; and

f3) ablation with a customized ablative pattern to induce positive spherical aberration with a coefficient of Zernike's polynomial Z_4^0 ranging between 0.1 and 1.0;

g) if the visual defect of the eye is emmetropia, control said excimer laser unit to perform:

g1) operations d2), d3) and d4), if the visual defect improves using a positive lens; and

g2) operations e1) and e2), if the visual defect improves using a negative lens;

h) if the visual defect of the eye is positive astigmatism or negative astigmatism, control said excimer laser unit to perform:

h1) operation d1) to achieve emmetropia;

h2) operations d2), d3) and d4), if the visual defect improves using a positive lens; and

h3) operations e1) and e2), if the visual defect improves using a negative lens.

31. (New) The excimer laser unit as claimed in Claim 25, also comprising:

i) second control means for controlling said excimer laser unit to form on the cornea a photoablative pattern which also corrects higher-order aberrations.

32. (New) A method of reducing presbyopia, comprising the step of:

- forming on the cornea a photoablative pattern inducing a fourth-order ocular aberration.

33. (New) The method as claimed in Claim 32, wherein said fourth-order aberration is a spherical aberration.

34. (New) The method as claimed in Claim 33, wherein said spherical aberration is a positive spherical aberration.